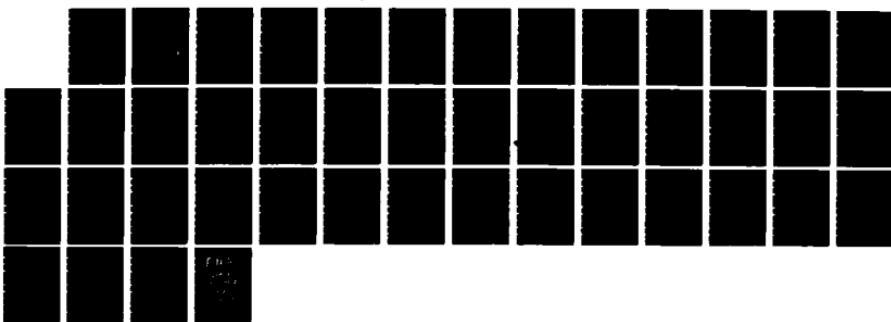


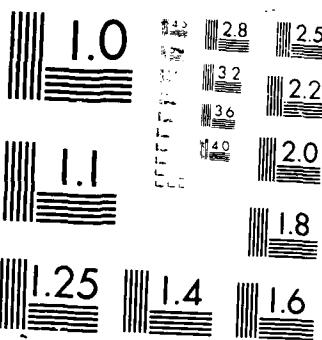
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United States General Accounting Office

Briefing Report to the Chairman,
Subcommittee on Health, Committee on
Ways and Means, House of
Representatives

July 1987

MEDICARE

Payments to Radiologists, Anesthesiologists, and Pathologists



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Human Resources Division
B-226467

July 20, 1987

The Honorable Fortney H. (Pete) Stark
Chairman, Subcommittee on Health
Committee on Ways and Means
House of Representatives

Dear Mr. Chairman:

This briefing report is in response to your December 4, 1986, request for information about the current Medicare payment mechanism for radiologists, anesthesiologists, and pathologists (RAPs) and the market structure for services provided by these physicians. The Subcommittee was also interested in whether the financial interests of the Medicare program and the Medicare beneficiary were considered when contracts were negotiated between hospitals and RAPs.

To develop this information, we analyzed the contractual arrangements at 16 hospitals in four geographic areas (Maine, Rhode Island, Queens County, New York, and Dade County, Florida). At each location, we interviewed physicians specializing in radiology, anesthesiology, and pathology, and reviewed pertinent literature to compare net income levels of various physician specialties. We also analyzed Medicare payment tapes for 1985 comparing the amounts billed and allowed for RAP services and the variances in payment rates across the four geographic areas we reviewed.

Specifically, our report shows that:

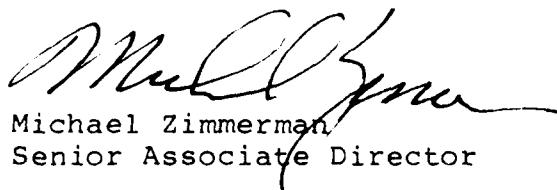
- The 16 hospitals we visited generally had open staffing policies; that is, any physician providing RAP services could apply for medical staff privileges on the same basis as any other physician. However, we found that the hospitals had entered into 38 written or verbal arrangements with RAP physicians which, in all but 2 instances, appeared to result in the physicians having exclusive rights to provide their services, either in practice or explicitly through a written contract.
- Hospitals have little incentive to restrain fees when contracting for RAP services. Individual patients and their attending physicians typically are not very responsive to price differences among competing RAPs.
- RAPs are among the physicians with the highest net income. According to American Medical Association data, the 1985 mean pretax net income was \$150,800 for

radiologists, \$140,200 for anesthesiologists, and \$127,000 for pathologists, compared with \$113,200 for all physicians. In addition, relating physicians' net incomes to their costs of medical education, shows that anesthesiologists, radiologists, surgeons, and pathologists--in that order--had the highest financial return on training costs.

- Medicare has no special requirements for prepayment review of RAP claims, beyond those normal for all physician services. Medicare has required reviews of office radiology services on a postpayment basis. Some carriers (Medicare paying agents) have initiated their own prepayment screens and postpayment studies.
- There is considerable variation in Medicare payments for RAP services across the four geographic areas we looked at. For anesthesiologists and radiologists, allowed charges for the procedures we analyzed were generally higher in Florida and Queens, than in Maine and Rhode Island. For pathology, allowed charges were highest in Maine and Florida.

As requested by your office, we did not obtain written agency comments on this briefing report. We plan no further distribution of this briefing report until 7 days from its issue date unless you release it earlier. At that time, we will send copies to other interested parties upon request. If you have any questions or would like additional information, please call me on 275-6195.

Sincerely yours,


Michael Zimmerman
Senior Associate Director



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ABBREVIATIONS

RAP	Radiologist, Anesthesiologist, or Pathologist
HCFA	Health Care Financing Administration
HHS	Department of Health and Human Services
TEFRA	Tax Equity and Fiscal Responsibility Act of 1982
FTC	Federal Trade Commission
AMA	American Medical Association
AHA	American Hospital Association
PPCIS	Physicians Practice Costs and Income Survey
HMO	Health Maintenance Organization
HRSA	Health Resources and Services Administration
CPI	Consumer Price Index

MEDICARE: PAYMENTS TO RADIOLOGISTS, ANESTHESIOLOGISTS
AND PATHOLOGISTS

INTRODUCTION

→ This briefing report provides information on three hospital-based physician specialties--radiologists, anesthesiologists and pathologists (RAPs). The Chairman of the Subcommittee on Health, House Committee on Ways and Means asked us to answer a series of questions about RAPs concerning:

- the contractual arrangements between hospitals and RAPs,
- the level of physicians' net incomes and percentage return on the cost of medical training,
- Medicare service volume on a per beneficiary basis,
- Medicare controls on the volume of these physicians' services, and
- the geographic variation in payment rates for their services.

RAPs provide services essential to the operation of hospitals and necessary for the diagnosis and treatment of illness and injury. They are the experts in performing and interpreting the laboratory tests and X-rays other physicians need before deciding how to appropriately treat patients and in administering the anesthetics necessary to perform many of those treatments. In 1985, these three hospital-based specialties accounted for 11.4 percent of the total U.S. supply of physicians and about 13.6 percent of the Medicare part B physician outlays.

This briefing report is based principally on (1) our analysis of the contractual arrangements at 16 hospitals in four states, (2) a review of various published material regarding the market structure for services provided by RAPs, (3) a review of various published material showing RAPs' net incomes and return on medical education training costs, (4) an analysis of Medicare payments by specialty between 1975 and 1985, (5) an analysis of utilization review of RAP services employed by four Medicare carriers (paying agents), and (6) our analysis of claims payment history tapes for RAP services during 1985 from four Medicare carriers.

Background: Physicians and Medicare

The Medicare program, authorized with the enactment of title XVIII of the Social Security Act (42 U.S.C. 1395), pays much of the health care costs of eligible persons 65 or over and certain disabled persons. It is administered by the Health Care Financing

Administration (HCFA), within the Department of Health and Human Services (HHS).

The program consists of two parts:

Part A--Hospital Insurance Benefits for the Aged and Disabled--covers inpatient hospital care, home health care, and inpatient care in a skilled nursing facility after a hospital stay. Part A is principally financed by taxes on earnings paid by employers, employees, and self-employed persons. In fiscal year 1985, Medicare part A covered about 30.6 million enrollees, and benefits amounted to about \$46 billion.

Part B--Supplementary Medical Insurance Benefits for the Aged and Disabled--covers physicians' services, outpatient hospital care, and other medical and health services and supplies. Part B is financed by beneficiaries' monthly premium payments and appropriations from general revenues. In fiscal year 1985, Medicare part B covered about 30 million enrollees, and benefits totaled about \$21.9 billion.

HCFA contracts with carriers (Blue Shield plans and commercial insurance companies) to pay for part B benefits furnished by noninstitutional providers, such as physicians, laboratories, and suppliers. Carrier payments of claims are usually on the basis of "reasonable charges." Under Medicare, reasonable charges represent the lowest of the physician's actual (or submitted) charge, his or her "customary" charge, or the "prevailing" charge in the locality. The customary charge is defined as an amount that best represents the actual charges made for a given service or procedure by a particular physician to the general public.

In calculating the customary charge for a particular physician for a given service, the carrier arrays each charge in ascending order, and the lowest charge that is high enough to include the median or midpoint of the arrayed charges is the customary charge. The prevailing charge for a given service or procedure is set at the 75th percentile of the customary charges for all physicians providing the service, subject to an economic index limitation.

Medicare part B payments for RAP services are generally 80 percent of the "reasonable" or "approved" charge for covered services, after the beneficiary has met the part B annual deductible of \$75. The Medicare beneficiary is then responsible for paying the remaining 20 percent of the approved charge. In addition, the beneficiary is responsible for paying the difference between the amount the physician charges for the service and the approved charge, unless the physician accepts assignment. If the claim is assigned, the physician submits it to the carrier, and if the service is covered by Medicare, the carrier pays the doctor directly for 80 percent of the reasonable charge. In turn, the physician agrees to accept Medicare's reasonable charge as the full

charge and thus can bill the beneficiary for only the remaining 20-percent coinsurance and any unpaid deductible based on the reasonable charge. If the claim is unassigned, the beneficiary submits the bill to the carrier and is reimbursed 80 percent of Medicare's reasonable charge. The 20-percent coinsurance and any unpaid deductible, as well as any difference between the physician's actual charge and the reasonable charge, becomes the beneficiary's responsibility.

Physicians have the option of becoming a Medicare participating physician, in which case they agree to accept assignment on all Medicare claims. Beginning in 1987, physicians who do not participate are subject to limitations on the maximum amount, called a maximum allowable actual charge, they can charge Medicare patients.

Because of concerns the Congress has had about payment for the services of hospital-based physicians, several payment provisions have been applied to these physicians. The 1967 Amendments to the Social Security Act (Public Law 90-248) established special, 100-percent-of-reasonable-charge reimbursement for radiology and pathology professional services provided to hospital inpatients. This provision was limited by the Omnibus Reconciliation Act of 1980 to radiologists and pathologists who accepted assignment for all services furnished to hospital inpatients. The Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA) eliminated the 100 percent payment provision and provided that services furnished on or after October 1, 1982, would be reimbursed on the same 80 percent of reasonable charge basis as other physician services.

TEFRA and its implementing regulations imposed special payment provisions on RAPs. Hospital-based radiologists became subject to a provision limiting Medicare payments to 40 percent of the prevailing charge for which that service is widely available in the community in an office setting. This reduction in payments was made for radiologists' inpatient services because hospitals are reimbursed, through Medicare part A payments, for the capital costs of the radiology equipment (thus reducing the radiologists' costs of providing the service).

Anesthesiologists were limited to payment for the concurrent supervision of no more than four certified, registered nurse-anesthetists. Clinical pathology services were defined as part A services, except for consultative services meeting specific criteria. TEFRA also required that, for those physicians who were either salaried by the hospital or on a percentage arrangement, the Medicare carrier develop a customary charge limit based on the compensation and time commitments (as contained in the agreement that the physician had with the hospital).

OBJECTIVES, SCOPE, AND METHODOLOGY

In response to Chairman Stark's request of December 4, 1986, we agreed that our review would address the following questions as they related to radiologists, anesthesiologists, and pathologists:

1. For the geographic areas selected for review, what types of contractual arrangements exist between hospitals and hospital-based physicians? Are the contracts exclusive or do they allow for competition among physicians? To what extent do hospitals have open staffing privileges for hospital-based physicians?
2. Do exclusive service contracts interfere with the ability of market forces to restrain fee levels?
3. Are there other characteristics of the market for hospital-based physician services that result in insufficient restraint on fees?
4. How do payment and net earnings levels for hospital-based physicians compare to payment and earnings levels for other physician specialties?
5. What is the rate of return on training for hospital-based physicians in comparison with the rate of return for other physician specialties? Can differences in the rate of return be explained on the basis of factors such as manpower shortages or surpluses?
6. Has the volume of services provided by hospital-based physicians on a per beneficiary or a per case basis increased with time?
7. Does the existing payment mechanism provide for controls on volume growth? Are these controls effective?
8. For a set of procedures provided by hospital-based physicians, how does reimbursement vary across geographic areas?

To answer these questions, we reviewed HCFA and carrier records and interviewed agency officials in Baltimore, Maryland, RAP specialty society representatives in Washington, D.C., and hospital and carrier representatives in the four geographic areas selected for review--Maine, Rhode Island, Queens County, New York and Dade County, Florida. We selected these areas principally because of the availability of Medicare payment tapes through HHS' Office of Inspector General. As suggested by Chairman Stark in his request letter, some of the questions were most effectively addressed by a review of the pertinent literature.

To determine what financial and contractual arrangements existed between hospitals and RAPs, we conducted reviews at four intermediaries (Medicare paying agents for part A claims)--Maine Blue Cross, Empire Blue Cross (New York), Rhode Island Blue Cross, and Blue Cross of Florida--and at four hospitals in each location. We selected hospitals with the largest Medicare dollar volume of services in each geographic area. At each intermediary, we reviewed hospital contract files to determine for each hospital the type of financial arrangements that existed during 1985 with RAP physicians. Where available, we reviewed copies of contracts between hospitals and RAP physicians to determine the type of financial arrangements.

At each of the 16 hospitals we interviewed hospital officials and reviewed documentation to verify and update information we obtained at the intermediary concerning the contractual arrangements between the hospitals and RAP physicians. At each hospital, we interviewed one physician practicing in each RAP specialty to obtain information about their contractual arrangement.

To assess whether exclusive service contracts or other characteristics of the RAP services' market interfere with the ability of market forces to restrain fee levels, we interviewed a Federal Trade Commission (FTC) official and reviewed reports prepared for the FTC, recent court decisions involving exclusive contracts, and other pertinent literature.

To compare net income levels for hospital-based physicians with earning levels for other physician specialties, we used American Medical Association, Medical Economics, and HCFA data. To compare rates of return on training for hospital-based and other physicians, we used a HCFA-funded study of rates of return to medical education.

To measure trends in the volume of services provided by RAPs on a per beneficiary basis, we used payment records data from 3 HCFA files. We adjusted these data to allow us to combine these files by individual RAP specialty. The methodology and assumptions used in this analysis are discussed on page 18 and in appendix II.

At each carrier, we determined the Medicare payment methodology for RAP physician services, including the limits imposed by TEFRA. We also determined the key features and results of utilization controls each carrier applied to medical services rendered by RAP physicians.

From the HHS Office of Inspector General's regional offices in Boston, New York and, Atlanta, we obtained four carrier calendar year 1985 payment tapes--one for each location reviewed. For selected procedures, we compared the amount billed and allowed across geographic areas. Rhode Island was used as a base to select

the procedures for comparison in each specialty. The procedures identified accounted for at least 25 percent of the allowed dollars in each specialty in Rhode Island.

We did not perform a reliability assessment to verify data obtained from the intermediaries, carriers or hospitals automated systems or records. With that exception, our work was performed in accordance with generally accepted government auditing standards.

PREVALENCE OF EXCLUSIVE CONTRACTS

We were asked to review the contractual arrangements in selected geographic areas between hospitals and hospital-based physicians to assess whether the contracts granted the physicians exclusive practice rights at the hospitals or allowed for competition among physicians. With two exceptions, at the 16 hospitals we visited, the contracted RAP physicians were the only physicians providing their specialty services at these hospitals under either written or verbal contractual arrangements.

At 12 of the 16 hospitals, radiologists had written contracts, while anesthesiologists had written contracts at only three hospitals. Pathologists either had written contracts (6) or were hospital employees (10) at all 16 hospitals.

Arrangements between RAP physicians and hospitals varied. The written contracts included a variety of provisions, such as:

- requiring the hospital to provide the contracting physicians the necessary equipment, supplies, and non-physician personnel;
- giving the contracting physicians authority to operate the hospital's radiology, anesthesiology or pathology departments, including supervising hospital employees;
- giving the contracting physicians exclusive use of these hospital departments' facilities and equipment; and
- requiring the contracting physician group to provide enough physicians to meet these departments' staffing requirements.

In an article¹ discussing a 1984 American Hospital Association (AHA) survey of hospital-medical staff relationships, an exclusive contract was defined as

" . . . a written agreement that gives a physician or physician group the right to provide administrative and clinical services in the operation of a hospital department; the agreement precludes other physicians from practicing that specialty in the hospital for the period of the contract."

The AHA survey found that about 62 percent of the pathology, 60 percent of the radiology, and 30 percent of the anesthesiology departments in the 3,601 hospitals responding had exclusive contracts in those departments.

Under the definition of exclusive contracts mentioned above, nearly one-fourth of the written agreements reviewed (5 of 21) at the 16 hospitals appeared to grant the contracting physicians exclusive rights to practice their specialty at the hospital. While the other 16 written agreements did not explicitly grant exclusive practice rights, the contracted physicians were the only practicing physicians providing their specialty services at these hospitals during 1985. As a result, all 21 written agreements either explicitly stated or appeared in practice to result in exclusive arrangements. However, a written contract with a pathology group at one hospital gave the hospital the right to select a chief pathologist from outside the pathology group, and a contract at another hospital with a radiology group allowed the hospital to employ radiologists outside the group. Officials at these hospitals told us that neither contract provision had been exercised.

In addition to the written agreements, verbal agreements between the hospitals and RAPs also appeared in practice to result in exclusive practice arrangements at most of the hospitals we reviewed. We identified 17 verbal agreements at the hospitals surveyed. In 16 of these 17 situations, the physicians with verbal agreements were the only physicians practicing their specialty at the hospital during 1985. In the remaining situation, an anesthesiologist outside of the contract group occasionally practiced at the hospital.

However, we noted at one of the hospitals a situation involving a verbal agreement that had changed significantly since 1985. At this hospital, the group of physicians who had provided anesthesia services for a number of years under a verbal agreement

¹Morrisey, M. and D. Brooks, "The Myth of the Closed Medical Staff," Hospitals, Vol. 59, No. 13 (July 1, 1985), pp. 75-77.

believed that they had an exclusive agreement. The hospital decided to hire additional anesthesiologists and was doing so at the time of our visit in early 1987. The anesthesiology group contended the hospital could not hire anesthesiologists from outside their group without their consent and was litigating the matter.

HOSPITAL RAP STAFFING

We were also asked whether hospitals have open or closed staffing privileges--that is, whether the hospitals will accept new applications for staff privileges in RAP specialties. We found that hospitals' staffing arrangements for RAPs officially were open (i.e., they would accept applications from RAP physicians), but in practice only RAPs with contracts provided services.

According to the 1984 AHA article discussed above, a closed medical staff is defined as one where ". . . a hospital does not accept new applications for any category of medical staff privileges--either temporarily or for an indefinite period of time." Using this definition, we found that the 16 hospitals visited had an open staffing policy in that any physician providing RAP services could apply for medical staff privileges on the same basis as any other physician. The five hospitals, which appeared to grant through written contracts exclusive practice rights to selected RAP physicians, were the only exceptions to this open staffing policy. As a practical matter, however, the only physicians providing RAP services on a recurring basis in our sampled hospitals during 1985 were those who had been affiliated with the contracting physicians' groups. The only exception to this was at one hospital where an anesthesiologist outside the physician group having the agreement provided some services.

EFFECTS OF EXCLUSIVE CONTRACTS AND OTHER MARKET CHARACTERISTICS ON RAP FEES

We were asked whether exclusive contracts or other characteristics of the market for RAP physicians result in insufficient restraint on fees.

The market for RAP services has several characteristics that tend to limit the ability of market forces to restrain fees, even without exclusive contracts. In the case of exclusive contracts, although hospitals negotiate the contract provisions, they do not bear the costs of nonsalaried RAP physicians' part B services. Those costs are paid for by Medicare and its beneficiaries. Also, neither patients nor their admitting physicians typically choose hospitals based on the price of RAP services. As a result, the hospital has little incentive to negotiate low rates for the physicians' direct patient care services or the acceptance of assignment by these physicians. And few of the contracts we

reviewed explicitly provided for restraint on fees or acceptance of assignment.

By entering into an exclusive contract with physicians for the provision of RAP services, a hospital limits the ability of patients and their attending physicians to choose among competing RAPs. Once the hospital is chosen, the RAPs who will provide ancillary services are determined--i.e., the patient cannot go somewhere else for the necessary RAP services.

But, even if exclusive contracts did not exist, a number of other characteristics of the market for RAP services would tend to limit the ability of market forces to restrain fees. Individual patients and their attending physicians typically will not be very responsive to price differences among competing RAPs for a number of reasons, including:

- The fees and the ancillary services that will be required during the hospital stay are rarely known by the patient in advance, partly because there is little repeat business.
- The services are ancillary to the reason for admission.
- Hospital selection is typically not made on the basis of the price of RAP services.
- The price of the RAP services are typically a small fraction of the total cost of the hospital stay. (For some Medicare beneficiaries, however, the cost of these physicians' services could be a large part of their out-of-pocket cost for the hospital stay.)

In contrast, hospitals, because of their extensive and recurring dealings with RAPs, should be better situated to arrange for the informed purchase of RAP services. Hospitals have incentives to control their costs, including amounts paid to RAPs for their supervisory and managerial duties. The question is whether hospitals have incentives to bargain for part B savings for Medicare and its beneficiaries. Our work suggests that these incentives are, at best, weak. At the hospitals we reviewed, with three exceptions, we did not see evidence that the hospitals attempted to negotiate fees or other factors influencing patients' part B costs--though several of the written contracts did include provisions allowing the hospitals to review fees. The three exceptions involved (1) two hospitals that required physicians to accept assignment, and (2) a hospital that required radiologists to limit fees to 6 percent above Medicare prevailing charge levels.

Our review of health economics literature identified two papers that maintained that competition among hospitals for patients can encourage hospitals to negotiate fee restraints with

their hospital-based physicians.² In essence, these papers presented the argument that hospitals would want to keep RAP fees reasonable in an effort to compete for patients. But the effectiveness of competition among hospitals for patients as it pertains to exclusive contract provisions is limited by a number of factors. As mentioned above, RAP service prices are seldom known by the patient before admission to the hospital. Further, the choice of a hospital is usually made because of the admitting physician's recommendations, the hospital's reputation in the community, previous use, location, and medical staff reputation.

There are a number of ways, however, in which use of exclusive contracts in certain circumstances can facilitate efficient delivery of hospital services. For example, among other things, it can

- assure the availability of necessary RAP services;
- increase the hospital's control over operation of the department;
- lower hospital costs through standardization of administrative procedures and centralized administration of the department;
- permit better scheduling of the use of facilities; and,
- help assure the quality of services by assuring that physicians perform enough procedures to maintain their proficiency, have an incentive to upgrade their skills, and are subject to hospital standards of quality.

To the extent that these factors increase efficiency, reduced hospital costs may result.

Further, we note that in Jefferson Parish Hospital District No. 2 v. Hyde (1984), the Supreme Court reviewed for the first time issues involving hospital-physician contracts, unanimously holding that an exclusive contract between a New Orleans area hospital and a group of anesthesiologists did not violate federal antitrust law. The court held that the arrangement was not per se illegal and did not unreasonably restrain competition in actual operation.

²W. Lynk, "Restraint of Trade through Hospital Exclusive Contracts: An Economic Appraisal of the Legal Theory," Journal of Health Politics, Policy and Law, Vol. 9, No. 2 (Summer 1984), pp. 269-279 and W. Lynk and M. Morrisey, "The Economic Basis of Hyde: Are Market Power and Hospital Exclusive Contracts Related?" Mimeographed (July 1986).

In summary, we cannot conclude that exclusive contracts necessarily result in higher fees, only that they apparently are not being routinely used by hospitals to create restraints on fees or to require acceptance of assignment. Because the level of RAP fees is typically not a deciding factor in hospital selection, we believe that hospitals have few incentives to use exclusive contracts to bargain with RAP physicians to restrain physician charges to Medicare beneficiaries.

RAP EARNINGS AND RATES OF RETURN

We were asked a series of questions dealing with the level of RAP physician earnings in comparison with other physician specialties. RAPs were among the specialties with the highest net incomes. Further, when net incomes for physician specialties are compared with the specialties' costs for medical training, anesthesiologists, radiologists, surgeons, and pathologists--in that order--had the highest financial return on their training costs.

RAPs Net Incomes are Among the Highest

RAPs earn higher net incomes than most other physicians, according to AMA data. The 1985 mean pretax net income for all physicians was \$113,200. The 1985 mean pretax net income was \$150,800 for radiologists, \$140,200 for anesthesiologists, and \$127,000 for pathologists. Compared with 1981 net income figures, the 1985 net income figures represent a 28.9 percent increase from \$116,900 for radiologists, an 18.2 percent increase from \$118,600 for anesthesiologists, and a 21.7 percent increase from \$93,000 for all physicians. These percentage increases are greater than the percentage increase in the Consumer Price Index (CPI), which increased 17.6 percent between July 1981 and July 1985. We could not make a similar comparison for pathologists because AMA data was not available for 1981 and 1982. (See table I.1, app. I.)

RAPs' median pretax net incomes also were higher than most other physicians. According to AMA data, the 1985 median pretax net income of all physicians was \$95,000. In contrast, the 1985 median pretax net income was \$150,000 for radiologists, \$128,000 for anesthesiologists, and \$120,000 for pathologists. Median income rose 36 percent from \$110,000 in 1981 for radiologists, and 16 percent from \$110,000 for anesthesiologists. The median pretax net income for all physicians rose 22 percent from \$78,000 in 1981. Similar comparisons of pathologists' median income could not be made because AMA data was not available for 1981 and 1982. (See table I.2, app. I.)

Another way of looking at RAP incomes using AMA data, is that in 1985 25 percent of all physicians had net incomes of \$140,000 or higher, 50 percent had net incomes of \$95,000 or higher, and 75

percent had net incomes of \$65,000 or higher. In comparison, during 1985:

- 25 percent of the radiologists had net incomes of \$200,000 or higher, 50 percent had incomes of \$150,000 or higher, and 75 percent had incomes of \$90,000 or higher;
- 25 percent of the anesthesiologists had net incomes of \$169,300 or higher, 50 percent had incomes of \$128,000 or higher, and 75 percent had incomes of \$98,000 or higher; and
- 25 percent of the pathologists had net incomes of \$155,000 or higher, 50 percent had incomes of \$120,000 or higher, and 75 percent had incomes of \$77,500 or higher.

(See table I.3, app. I.)

An alternate source of income data is Medical Economics, which indicates that the 1985 median pretax net income was \$150,000 for radiologists, and \$134,000 for anesthesiologists. Like AMA data, this data has missing values for pathologists' income that precludes presenting their income for 1985. The advantage of this data, compared to the AMA data, however, is that more specialties' incomes are presented. Medical economics data are consistent with the AMA data in showing median income for RAPs that are considerably higher than the "all physicians" median income. In addition, it shows that in 1985 only neurosurgeons (\$192,700), orthopedic surgeons (\$168,800), thoracic surgeons (\$151,800) and plastic surgeons (\$155,200) had median pretax net incomes higher than either radiologists' or anesthesiologists' median incomes.

(See table I.4, app. I.)

Data from HCFA's Physicians' Practice Costs and Income Survey (PPCIS) on 1983 physician income by type of employment also shows high net incomes for RAPs. The four employment categories are hospital employee, clinic or HMO employee, corporate or other physician employee, and self-employed. In 1983, self-employed radiologists (\$130,400), anesthesiologists (\$134,100), and pathologists (\$124,000) earned incomes higher than for all self-employed physicians (\$99,600), with net incomes higher than all other specialties except cardiovascular disease (\$130,000) and orthopedic surgery (\$140,500). In the settings where the physicians were employees, for RAPs as well as for most other physician specialties, incomes were generally lower. (See table I.5, app. I.).

Appendix I includes a series of tables comparing physicians' income levels as reported from the three sources discussed above.

It also discusses characteristics and limitations of each data source.

Rates of Return on Medical Training Are High for RAPs

In 1983, RAPs had higher rates of return to medical education costs than physicians overall, according to a study funded by HCFA. A rate-of-return calculation is a way to compare physicians' net earnings from medical practice, that considers the cost and length of medical training. Radiologists, anesthesiologists, and pathologists had annual rates of return of 20, 22, and 17 percent, respectively, compared with 16 percent for all physicians. (See table 1.) The return for surgery was 19 percent; the other specialties studied had rates of return that were lower than any of the RAP specialties.

Table 1. Rates of Return to Medical Education Costs, by Specialty (1983)

Speciality

<u>Field</u>	<u>Rate (percent)</u>
All physicians	16
Radiology	20
Anesthesiology	22
Pathology	17
General/family practice	11
Internal medicine	14
Surgery	19
Pediatrics	9
Obstetrics-gynecology	16
Psychiatry	13

Source: F. Sloan and J. Hay, "Alternative Medicare Pricing Mechanisms for Physicians' Services," Unpublished (May 16, 1985).

We were also asked to address whether differences in rates of return could be explained by such factors as physician shortages or surpluses. Because the rate of return data in Table 2 is for 1983, we sought supply/shortage data for 1983 as well. To determine whether a shortage or a surplus existed for any specialty, measures of both supply and requirement estimates would be needed. Requirement estimates by specialty were not available for 1983. Consequently, we cannot determine whether a shortage or a surplus existed for the specialties listed in Table 2.

We note, however, that shortage/surplus projections for 1990 are available. In 1983, the Battelle Human Affairs Research Centers, under contract with HHS, developed 1990 projections of supply and requirements for diagnostic radiology, therapeutic

radiology, anesthesiology, pathology, and all physicians. The projections in table 2 shows these supply and requirement estimates for RAP physicians and all physicians.

Table 2: Physician Supply and Requirement Estimates (1990)

	<u>Physicians^a</u>	<u>Total residents and fellows</u>	<u>Total supply^b</u>	<u>Required</u>	<u>Surplus (shortages)</u>
Diagnostic Radiology	24,400	3,500	25,650	19,200	6,450
Therapeutic Radiology	2,050	300	2,150	2,500	(350)
Anesthesiology	18,750	2,050	19,450	22,150	(2,700)
Pathology	16,000	2,450	16,850	15,900	950
All Physicians	504,750	88,500	535,750	473,000	62,750

^aExcludes residents and fellows.

^bIncludes .35 x the number of residents and fellows.

Source: M. Bowman, et al., "Estimates of Physician Requirements for 1990 for the Specialties of Neurology, Anesthesiology, Nuclear Medicine, Pathology, Physical Medicine and Rehabilitation, and Radiology: A Further Application of the GMENAC Methodology," Journal of the American Medical Association, Vol. 250, No. 19 (November 18, 1983), pp. 2623-2627.

Comparison of the estimated total supply and requirements in table 2 shows a surplus projected for diagnostic radiology, pathology, and all physicians, and a shortage for therapeutic radiology and anesthesiology.

AMOUNT OF SERVICES PROVIDED BY RAPS

We were asked whether the volume of services provided by RAPs on a per beneficiary or per case basis increased with time. HCFA did not compile data which allows a precise comparison over time of per beneficiary or per case services provided by RAPs. This is so because, prior to the enactment of TEFRA, the Medicare program permitted the use of three billing methods for hospital-based physicians, and HCFA did not compile the data by specialty from these various billing methods.

While data on RAP service volume are not available from existing data sources, aggregate payment data from the three

billing sources were available allowing us to estimate the changes over time in payments to RAPs as a percentage of total Medicare part B reimbursements. To enable estimating changes in payment levels over time of the individual RAP specialties it was necessary to make a number of assumptions detailed in appendix II. Our estimates of Medicare part B payments for RAPs and other selected physician specialties for calendar years 1975, 1981 and 1985 appear in tab'e 3.

Table 3: Medicare Part B Payments by Physician Specialty (1975, 1981, and 1985)

Specialty	Part B payment by physician specialty							
	1975 (est.)		1981 (est.)		1985 (actual)			
	Amount (000)	Percent		Amount (000)	Percent		Amount (000)	Percent
Radiology	\$210,047	7.0	\$710,962	8.3	\$1,074,976	8.0		
Anesthesiology	132,741	4.4	405,656	4.7	612,499	4.6		
Pathology	<u>74,921</u>	<u>2.5</u>	<u>201,518</u>	<u>2.3</u>	<u>140,820</u>	<u>1.1</u>		
All RAP specialties	<u>\$417,709</u>	<u>13.9</u>	<u>\$1,318,136</u>	<u>15.3</u>	<u>\$1,828,295</u>	<u>13.6</u>		
General practice	\$391,525	13.0	\$ 575,547	6.7	\$ 590,144	4.4		
Family practice	38,719	1.3	316,001	3.7	489,092	3.6		
Internal medicine	589,080	19.6	1,625,954	18.9	2,191,760	16.3		
Cardiovascular	81,622	2.7	362,666	4.2	729,151	5.4		
Dermatology	31,315	1.0	105,066	1.2	191,538	1.4		
General surgery	343,464	11.4	826,539	9.6	1,061,630	7.9		
Orthopedic surgery	167,458	5.6	475,689	5.5	694,992	5.2		
Ophthalmology	182,965	6.1	688,669	8.0	1,408,337	10.5		
Urology	152,553	5.1	377,163	4.4	491,140	3.7		
Podiatry	42,521	1.4	146,972	1.7	211,791	1.6		
Other physicians	563,905	18.8	1,791,837	20.8	3,581,129	26.6		
Physicians other than RAPs	<u>\$2,565,127</u>	<u>86.1</u>	<u>\$7,292,103</u>	<u>84.7</u>	<u>\$11,640,704</u>	<u>86.4</u>		
Grand total for all physicians	<u>\$3,002,836</u>	<u>100.0</u>	<u>\$8,610,239</u>	<u>100.0</u>	<u>\$13,468,999</u>	<u>100.0</u>		

See appendix II for the methods and assumptions used in preparing this table.

Note: Columns may not add due to rounding.

Source: GAO analysis of HCFA data.

As shown in table 3, RAP payments as a percentage of total Medicare physician payments appear to have increased from 13.9 percent in 1975 to over 15 percent in 1981, with radiology accounting for most of this increase. RAP payments affected by the TEFRA changes discussed on p. 7, have shown a general decline since 1981 to a level comparable in percentage terms to 1975, or about 13.6 percent of total Medicare part B physician payments.

Using the Medicare payment data from table 3, and mid-period Medicare enrollment data for the same years, we calculated the average Medicare payments per Medicare enrollee for 13 selected physician specialties, including RAPs.

In 1975, average Medicare payments per beneficiary enrolled in part B amounted to \$17.50 for the three RAP specialties (see table 4). Payments per beneficiary for pathology services at \$3.14 was the lowest followed by anesthesiology at \$5.56 and radiology at \$8.80. In 1985, the average payments per beneficiary for the three RAP specialties had increased to \$61.06--\$4.70, \$20.46, and \$35.90, respectively. Table 4 shows that RAP payments per enrollee from calendar year 1975 to 1985 increased about 308 percent for radiologists, 268 percent for anesthesiologists, and 50 percent for pathologists, while payments for all other physicians (excluding RAPs) increased 259 percent.

With implementation of the prospective payment system (PPS), effective for hospital cost-reporting periods that began on or after October 1, 1983, the Medicare program switched payment for hospital inpatient services from a retrospective, cost-based reimbursement to a new prospective payment system under which hospitals are paid a predetermined specific amount for inpatient services to Medicare beneficiaries based on the principal diagnosis. The PPS had the effect of reducing inpatient hospital stays and shifting some services and charges to Medicare's part B outpatient services. For example, our estimates in table 5 of the percentage distribution of all radiology services by place of service indicates, that for total radiology services (the sum of diagnostic X-ray and radiation therapy) between 1982 and 1985, there was a shift from the inpatient to the outpatient settings. In the case of anesthesiology services, between 1982 and 1985 there was also a movement from inpatient to outpatient services. Comparable information was not available for pathology services. Similar trends exist when physician payment data is used instead of number of services. (See table 6.)

**Table 4: Average Medicare Payment per Enrollee by Physician Specialty
(1975, 1981, and 1985)**

Specialty	Average Medicare payment per enrollee		
	1975	1981	1985
Radiology	\$8.80	\$25.48	\$35.90
Anesthesiology	5.56	14.54	20.46
Pathology	<u>3.14</u>	<u>7.22</u>	<u>4.70</u>
Average RAP payment per enrollee	<u>\$17.50</u>	<u>\$47.25</u>	<u>\$61.06</u>
General practice	16.40	20.63	19.71
Family practice	1.62	11.33	16.33
Internal medicine	24.67	58.28	73.20
Cardiovascular	3.42	13.00	24.35
Dermatology	1.31	3.77	6.40
General surgery	14.39	29.63	35.46
Orthopedic surgery	7.01	17.05	23.21
Ophthalmology	7.66	24.69	47.03
Urology	6.39	13.52	16.40
Podiatry	1.78	5.27	7.07
Other physicians	<u>23.62</u>	<u>64.23</u>	<u>119.60</u>
Average payments per enrollee for physicians other than RAPs	<u>\$108.28</u>	<u>\$261.38</u>	<u>\$388.76</u>
Total payment per enrollee for all physician specialties	<u>\$125.77</u>	<u>\$308.63</u>	<u>\$449.82</u>

Note: Columns may not add due to rounding.

Source: GAO analysis of HCFA data.

Table 5: Distribution of Medicare Services, by Type and Place of Service
(1982-1985)

<u>Type and Place of Service</u>	<u>Distribution of Medical services (percent)</u>			
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Diagnostic X-ray				
All places	100.0	100.0	100.0	100.0
Inpatient hospital	52.1	53.3	52.5	48.0
Outpatient hospital	16.1	17.2	19.7	22.0
Office	28.6	26.5	24.9	26.9
Other ^a	3.2	3.0	3.0	3.1
Radiation therapy				
All places	100.0	100.0	100.0	100.0
Inpatient hospital	33.9	20.5	18.6	14.0
Outpatient hospital	42.1	51.8	53.5	54.6
Office	21.7	24.7	25.3	28.5
Other ^a	2.4	3.0	2.6	3.0
Total radiology^b				
All places	100.0	100.0	100.0	100.0
Inpatient hospital	50.2	50.3	49.4	44.9
Outpatient hospital	18.8	20.3	22.8	24.9
Office	27.9	26.3	24.9	27.1
Other ^a	3.1	3.0	2.9	3.1
Anesthesia				
All places	100.0	100.0	100.0	100.0
Inpatient hospital	98.9	98.1	95.1	87.8
Outpatient hospital	0.8	1.5	4.0	10.5
Office	0.3	0.4	0.5	0.9
Other ^a	0.0	0.1	0.5	0.8

^aOther includes home, skilled nursing facility, limited care facility, etc.

^bTotal radiology summarizes information contained in the preceding categories of diagnostic X-ray and radiation therapy.

Source: GAO analysis of HCFA data.

**Table 6: Distribution of Medicare Reasonable Charges by Type and Place of Service
(1982-1985)**

<u>Type and Place of Service</u>	<u>Distribution of Medical Reasonable Charges (percent)</u>			
	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Diagnostic X-ray				
All places	100.0	100.0	100.0	100.0
Inpatient hospital	43.6	44.4	43.1	38.8
Outpatient hospital	12.9	14.1	15.9	17.7
Office	40.4	38.3	37.7	40.3
Other ^a	3.1	3.1	3.3	3.3
Radiation therapy				
All places	100.0	100.0	100.0	100.0
Inpatient hospital	26.5	20.3	17.6	13.5
Outpatient hospital	36.6	41.4	42.7	43.6
Office	34.9	35.6	36.9	40.0
Other ^a	2.1	2.7	2.8	2.9
Total radiology^b				
All places	100.0	100.0	100.0	100.0
Inpatient hospital	41.4	41.4	39.9	35.6
Outpatient hospital	16.0	17.6	19.2	20.9
Office	39.7	37.9	37.6	40.2
Other ^a	3.0	3.1	3.3	3.3
Anesthesia				
All places	100.00	100.00	100.00	100.00
Inpatient hospital	98.6	97.6	94.0	85.1
Outpatient hospital	1.0	1.9	5.1	13.1
Office	0.4	0.4	0.5	1.0
Other ^a	0.0	0.1	0.5	0.8

^aOther category includes home, skilled nursing facility, limited care facility, etc.

^bTotal radiology summarizes information contained in the preceding categories of diagnostic X-ray and radiation therapy.

Source: GAO analysis of HCFA data.

UTILIZATION REVIEW LIMITED

To control unwarranted growth in the volume of services, Medicare's physician payment process employs utilization review, which is intended to prevent or recover payments for physician services that are not medically necessary. Medicare carriers may perform these reviews either before a claim is paid--prepayment review--or after payment--postpayment review.

HCFA has not established specific requirements for pre-payment review of RAP claims. To detect services that may not have been medically necessary, HCFA guidelines require carriers to subject claims to computer checks, called prepayment screens. HCFA has established 16 mandatory prepayment screens that must be applied to certain physician services. None of these mandatory screens involve RAP services. Some carriers, however, have established their own prepayment screens for RAP services.

HCFA's postpayment review guidelines provide some coverage of RAP services. Through statistical analysis, carriers identify physicians whose practice patterns indicate unusually high use of services compared to their peers. HCFA guidelines require carrier utilization review staffs, including medical personnel, to review a sample of claims submitted by these physicians to identify any services that may not be medically necessary. The service categories designated for analysis in HCFA guidelines include office radiology services, but not other types of services RAPs normally provide. Some carriers, however, have performed special postpayment studies of RAP claims.

Carrier Utilization Review Activity

Three of the four carriers serving the four geographic areas in our sample have developed their own prepayment screens for RAP services. The three carriers were using eight prepayment screens for these services during 1985. In addition, three of the carriers had performed special postpayment studies of RAP claims during the period 1983--1985.

Examples of prepayment screens being used by the carriers are:

- Blue Shield of Florida uses a screen to identify multiple anesthesia procedures for the same beneficiary on the same day. This screen reportedly enabled the carrier to save Medicare \$249,241 during calendar year 1985.
- Massachusetts Blue Shield, the carrier for Maine, has a screen to question all claims for more than three chest x-rays per month per beneficiary.

- Florida Blue Shield conducted a special postpayment review in 1985 of 10 Florida pathologists to determine whether pathologists were billing for clinical pathology procedures normally performed by laboratory technicians. Based on the results of this study, Florida Blue Shield is attempting to recover a total of about \$59,000 from the 10 pathologists, and has established a prepayment screen to identify, for further review, claims involving more than one clinical pathology consultation per beneficiary per day.
- Group Health Incorporated, the carrier for Queens, New York, conducted a special study on anesthesiologists, which it reported in its Annual Management Report--Postpayment Utilization Activity for fiscal year 1985. The carrier found that anesthesiologists often did not indicate whether the services provided were for general anesthesia or for less costly local or standby services. The carrier advised the physicians that in the future they would be reimbursed at the lower local or standby rate if they did not indicate the type of service provided.

Carriers Question Productivity of Expanded Utilization Review

The program savings generated by these carriers' prepayment utilization review edits are generally much more than the related costs. Carrier officials believed, however, that the potential for identifying additional questionable claims for RAP services through utilization review is limited.

Two of the carriers excluded one or more of the RAP specialties from their utilization review analyses. Carrier officials told us that the limited resources available for postpayment review could be better applied reviewing physicians who order RAP services. This is because, we were told by carrier officials, RAP services normally are ordered by a physician other than the one providing the service, and the RAP physician is therefore generally not in a position to increase service volume.

Hospitals Have Incentive to Control RAP Part A Costs

In addition to the above utilization controls under part B, since the implementation of PPS, hospitals have had an incentive to limit RAP ancillary services to the extent that they increase part A costs. This is because, under PPS, hospitals are paid a predetermined amount based on the patient's diagnosis. If services are provided for less than this amount, the hospital makes a profit. If costs exceeded the payment, the hospital suffers a loss. Thus, PPS could be expected to exert some limiting effects on the volume of RAP services.

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PAYMENT VARIES ACROSS GEOGRAPHIC AREAS

We were also asked to address how Medicare reimbursement of RAP physicians varies across geographic areas. Medicare payments varied considerably across the four geographic areas we looked at. The Medicare process for determining allowed charges provides for some variation in amounts paid to different physicians. Medicare carriers allow charges they determine to be reasonable by selecting the lower of

- the "actual" charge the physician billed,
- the "customary" charge the physician usually bills for a given procedure, or
- the "prevailing" charge for a given procedure, set at a level so that customary charges for 75 percent of the physicians in an area will be lower.

Each carrier determines prevailing charges separately for one or more localities in the geographic area the carrier serves. As a result, allowed charges vary across geographic areas as well as among physicians.

In the four areas we reviewed, Medicare allowed charges for RAP services totaled \$127.3 million during 1985. This total includes \$74.1 million for radiology, \$32.0 million for anesthesiology, and \$21.2 million for pathology services. The percentage of allowed charges for radiology services provided at a hospital represented a smaller proportion of the total than for the other two specialties. About 50 percent of the allowed radiology charges were for services provided in a hospital setting; the percentages for anesthesiology and pathology were about 96 and 70 percent, respectively.

Geographic Variations in Payments

To determine variation across geographic areas we analyzed a group of procedures, including 13 anesthesiology, 4 pathology, and 5 radiology procedures. We selected the 22 procedures which, in Rhode Island Medicare part B payment records, accounted for at least 25 percent of the allowed charges for each type of physician. In addition, we separately analyzed radiology services provided in a doctor's office and those provided to a hospital inpatient. Medicare's allowed charge for services performed in a doctor's office covers both the physician's professional services and the cost of equipment, while the payment for hospital services covers only professional services.

Radiotherapy services

Allowed charges for radiotherapy services provided in hospitals were higher in Florida and Queens, than in Maine and Rhode Island. (See table 7.)

Table 7: Geographic Variation in Billed and Allowed Charges for Selected Hospital Radiotherapy Procedures (1985)

Procedure	Average amount billed per service				Average amount allowed per service				Difference in allowed charge (low to high)		
	Maine		Rhode Island	Florida	Queens, N.Y.	Maine	Rhode Island	Florida	Queens, N.Y.	Amount	Percent ^a
Radiological examination, chest: two view frontal and lateral (Procedure 71020)	\$ 16.10	\$ 18.12	\$ 20.28	\$ 20.94 ^b	\$ 11.31	\$ 11.87	\$ 14.85 ^b	\$ 13.82	\$ 3.54	31.3	
Daily megavoltage treatment management: complex (Procedure 77410)	36.92	123.73 ^b	43.67	58.29	28.03	N/A	33.44 ^b	N/A	5.41	19.3	
Radiological examination, chest: single view, frontal (Procedure 71010)	11.93	14.92	17.97 ^b	14.84	N/A	7.74	11.77 ^b	11.03	4.03	52.1	
Computerized axial tomography, head or brain: without contrast material (Procedure 70450)	83.33	84.68	108.07	119.18 ^b	58.76	N/A	84.67	89.36 ^b	30.60	52.1	
Daily megavoltage treatment management: simple (Procedure 77400)	27.93	23.40	30.80	37.36 ^b	15.73	N/A	22.42 ^b	N/A	6.69	42.5	

N/A=Not available.

^aComputed by dividing the difference by the lowest amount allowed.

^bIndicates the highest billed and allowed amounts among the four locations.

Source: GAO analysis of Medicare payment tapes.

Allowed charges for diagnostic X-ray procedures performed in a doctor's office were also higher in Florida and Queens, while charges in Rhode Island were generally lower. We found some significant differences in Medicare-allowed amounts for the same radiology procedure between the four areas. For example, Rhode Island radiologists were allowed an average of about \$31 for a two view chest X-ray provided in a doctor's office, while Queens, radiologists were allowed about \$44--a difference of \$13 or about 42 percent. Florida radiologists were allowed about \$36. For "daily megavolt treatment management: complex" the highest allowed amounts were in Rhode Island (about \$66) and the lowest were in Florida (about \$34). For "CAT scans," payment patterns were reversed: the lowest allowed charges were in Rhode Island (about \$188) and the highest were in Florida (about \$275). The extent of variation for the five procedures reviewed is shown in table 8.

Table 8: Geographic Variation in Billed and Allowed Charges for Selected Radiology Procedures Provided in a Doctor's Office (1985)

<u>Procedure</u>	Average amount billed per service				Average amount allowed per service				Difference in allowed charge (Low to high)	
	Maine	Rhode Island	Florida	Queens, N.Y.	Maine	Rhode Island	Florida	Queens, N.Y.	Amount	Percent ^a
Radiological examination, chest, two views: frontal and lateral (Procedure 71020)	\$ 44.69	\$ 44.57	\$ 44.52	\$ 53.44 ^b	N/A	\$ 30.85	\$ 35.79	\$ 44.02 ^b	\$ 13.17	42.7
Daily megavoltage treatment management: complex (Procedure 77410)	N/A	107.95 ^b	49.65	69.87	N/A	66.06 ^b	34.04	51.97	32.02	94.1
Radiological examination, chest: single view, frontal (Procedure 71010)	27.03	33.93	31.37	42.94 ^b	\$ 21.32	23.46	25.34	34.36 ^b	13.04	61.2
Computerized axial tomography, head or brain: without contrast material (CAT scan) (Procedure 70450)	266.13	212.31	354.16 ^b	266.30	224.46	188.46	274.82 ^b	214.36	86.36	45.8
Daily megavoltage treatment management: simple (Procedure 77400)	25.00	89.31 ^b	37.68	79.07	c	61.48 ^b	23.38	44.61	36.10	163.0

N/A=Not Available.

^aComputed by dividing the difference by the lowest amount allowed.

^bIndicates the highest billed and allowed amounts among the four locations.

^cOnly one service was provided.

Source: (CAT analysis of Medicare payment tapes).

Anesthesia services

Allowed charges for anesthesiology services were higher in Florida and Queens County than in Maine and Rhode Island. For example, the average allowed charge for anesthesiology services provided during a cataract extraction with lens implantation, a common procedure for Medicare beneficiaries, varied from a low in Rhode Island of \$152, to a high in Queens County of \$285--a difference of \$133 or about 88 percent. Other common anesthesiology procedures showed similar differences, and in most instances the variance between the lowest and highest allowed charges was 90 percent or more. Table 9 summarizes these variations.

Table 9: Geographic Variation in Billed and Allowed Charges
for Selected Aesthetic Surgery Procedures (1985)

Procedure	Average billed charge per service				Average allowed charge per service				Difference in allowed charge (low to high)	
	Maine	Rhode Island	Florida	New York	Maine	Rhode Island	Florida	New York	Avg diff.	% diff.
Cataract extraction with lens implantation (Procedure 66941)	\$281	\$364	\$389	\$452 ^c	\$168	\$152	\$276	\$383	\$133	87.5
Extraction of lens with or without iridectomy; extracapsular, with or without enzymes (Procedure 66920).	273	468	425	448 ^c	172	168	241 ^c	347	175	64.4
Transurethral resection of prostate, including control of postoperative bleeding, complete (Procedure 52601).	233	287	179	433 ^c	135	122	255 ^c	234	133	109.0
Gastric, partial; with anastomosis. (Procedure 44141).	386	467	560	728 ^c	231	195	356	465 ^c	211	103.2
Total hip replacement, simple (Procedure 27130).	420	540	638	834 ^c	259	217	389	546 ^c	329	151.6
Insertion of intraocular lens subsequent to cataract removal (Procedure 66905).	259	357	312	431 ^c	164	174	252	267 ^c	103	62.8
Cholecystectomy (Procedure 47600).	330	376	463	625 ^c	190	159	316	354 ^c	195	122.6
Repair of inguinal hernia, age 5 or over (Procedure 49305).	234	269	349	393 ^c	134	112	232 ^c	226	120	107.1
Extraction of lens with or without iridectomy; extracapsular (Procedure 66940).	312	370	377	417 ^c	199	169	283	296 ^c	127	75.1
Extracapsular cataract extraction with insertion of intraocular lens prosthesis (one stage procedure) (Procedure 66983).	283	324	258	456 ^c	178	146	222	287 ^c	141	96.6
Cast rostomy, temporary (tube, rubber or plastic) (Procedure 43630).	306	350	431	450 ^c	172	150	285 ^c	271	135	90.0
Coronary artery bypass, autogenous graft; three coronary arteries (Procedure 33512).	835	1131	1616 ^b	b	490	451	942 ^c	b	491	108.9
Extracapsular cataract removal with insertion of intraocular lens prosthesis (one stage procedure) (Procedure 66984).	277	333	342	475 ^c	169	149	267	272 ^c	123	82.6

aComputed by dividing the difference by the lowest amount allowed.
bb services were billed.

cIndicates the highest billed and allowed amounts among the four locations.

Source: GAO analysis of Medicare payment tapes.

The four carriers used a similar methodology to determine allowed charges for anesthesiology services. First, they determine the number of service units (the sum of base units--a measure of complexity and risk--and time units--how long the procedure took) allowed for a given procedure. The number of service units is then multiplied by a dollar conversion factor, based on physicians' past charge patterns. The product is the allowed charge for the procedure.

But different carriers used different base units in computing allowed anesthesiology charges, and this contributes to the geographic differences in payments seen in table 9. Because base units represent the complexity and risk of a procedure, base unit differences for the same procedures may not be warranted.

For 6 of the 13 procedures analyzed in the four locations reviewed, we found significant base unit differences. The differences varied from 20 to 70 percent for the six procedures. For example, the base units for anesthesia for a "total hip replacement, simple", ranged from 7 in Florida and Rhode Island to 12 in New York. The effect of this would be to introduce a 70-percent difference in allowed amounts across these geographic areas, all other factors being equal. The differences noted for the six procedures are summarized in table 10.

Table 10: Geographic Variation in Base Units Used to Compute Allowed Charges for Selected Anesthesiology Procedures, (1985)

<u>Description of procedure</u>	<u>Base units allowed by location</u>			
	<u>Maine</u>	<u>Rhode Island</u>	<u>Florida</u>	<u>Queens N.Y.</u>
Extraction of lens with or without iridectomy; intracapsular, with or without enzymes	8	8	8	6
Transurethral resection of prostate, including control of postoperative bleeding, complete	5	5	6	5
Total hip replacement, simple	10	7	7	12
Cholecystectomy	7	6	7	7
Repair of inguinal hernia, age 5 or over	4	4	5	4
Coronary artery bypass, autogenous graft; three coronary arteries	20	20	25	25

Source: Medicare carriers in four areas.

The President of the American Society of Anesthesiologists stated that differences in base units do not appear to be warranted. In testimony before the Subcommittee on Health, Committee on Ways and Means on May 13, 1987, he stated that there is no rational explanation for the differences from carrier to carrier in base units. He cited the following example:

"Anesthesia for surgery on the lung, whether provided in New York or Tucson, involves the same anesthesia complexity and risk and thus should carry the same number of base units."

Pathology services

Allowed charges for pathology services were generally higher in Maine and Florida than in Rhode Island and Queens County. We believe this is partly due to the fact that during 1985, at the hospitals we visited in Rhode Island and Queens the pathologists were salaried hospital employees. Medicare payments for professional services (part B) of salaried pathologists consider their salary compensation and the number and type of services

provided. This payment method can produce lower payments than the reasonable-charge methodology applicable to other physicians.

Although there were smaller differences among the allowed amounts for the four pathology procedures we examined than among the anesthesiology procedures, there were some significant differences. For example, in Maine the average allowed amount was \$73 for a certain surgical pathology procedure, while in Rhode Island or New York the average allowed was slightly over \$46 for the same procedure. Our analysis for the four procedures reviewed is shown in table 11.

Table 11: Geographic Variation in Billed and Allowed Charges per Service for Selected Pathology Procedures (1985)

Procedure	Average				Average				Difference in allowed charge (low to high)			
	Maine	Island	Florida	Quebec	Maine	Island	Florida	Quebec	Maine	Island	Florida	Quebec
Surgical pathology, gross and microscopic examination of presumptively abnormal tissue(s); uncomplicated specimen (Procedure 8810A)	\$ 57.65b	\$ 53.46	\$ 49.71	\$ 31.55	\$ 37.63b	\$ 19.42	\$ 27.53	\$ 30.49	\$ 18.21	\$ 18.21	\$ 30.49	93.8
Surgical pathology, gross and microscopic examination of presumptively abnormal tissue(s); single complicated or multiple uncomplicated specimen(s) without complex dissection (Procedure 8810B)	\$6.97b	78.76	74.89	28.95	48.75b	24.43	39.64	28.54	24.32	24.32	99.5	
Surgical pathology, gross and microscopic examination of presumptively abnormal tissue(s); single complicated specimen requiring complex dissection or multiple complicated specimens (Procedure 8820)	160.82b	117.28	107.12	48.23	72.98b	46.16	68.78	46.29	26.82	26.82	58.1	
Surgical pathology, gross and microscopic examination of presumptively abnormal tissue(s); complex diagnostic problem with or without extensive dissection. (Procedure 8830)	84.99	190.23b	150.43	53.72	60.54	50.87	92.64b	52.75	41.77	41.77	82.1	

aComputed by dividing the difference by the lowest amount allowed.

bIndicates the highest billed and allowed amounts among the four locations.

Source: GAO analysis of Medicare payment tapes.

TABLES OF PHYSICIAN INCOMES

The following tables present data comparing incomes of radiologists, anesthesiologists, and pathologists with other physician specialties from the three sources we used: the American Medical Association (tables I.1-I.3), Medical Economics (table I.4), and HCFA's Physician's Practice Costs and Income Survey (PPCIS) (table I.5).

DATA LIMITATIONS

Several limitations with the AMA, Medical Economics, and HCFA's PPCIS data should be noted because these data are not always comparable. While each data set is based on random samples of medical doctors obtained from AMA's Physician Masterfile, a master list of physicians, differences in reported results may be noted because of sampling variation and because of different reporting formats.

Both Medical Economics and AMA surveys exclude federal physicians and residents. Additionally, both sources exclude data for certain years in some of the specialty groups. Also, the response rates were relatively low--ranging from 60 to 64 percent for the AMA, from 33 to 39 percent for Medical Economics, and from 50 to above 70 percent for the PPCIS. These data, however, are the most current we are aware of.

Table I.1: Mean Pretax Net Income By Physician Specialty (1981-1985)

Specialty	Mean pretax net income				
	1981	1982	1983	1984	1985
Radiology	\$ 116,900	\$ 136,800	\$ 148,000	\$ 139,800	\$ 150,800
Anesthesiology	118,600	131,400	144,700	145,400	140,200
Pathology	N/A	N/A	117,700	118,000	127,000
Surgery	118,600	130,500	145,500	151,800	155,400
OB/GYN	110,800	115,800	119,900	116,200	122,700
Internal Medicine	85,100	86,800	93,300	103,200	101,000
Psychiatry	70,600	76,500	80,000	85,500	88,600
General/Family practice	72,200	71,900	68,500	71,100	77,900
Pediatrics	65,100	70,300	70,700	74,500	77,100
All physicians	93,000	99,500	106,300	108,400	113,200

N/A = Not available.

Source: American Medical Association.

Table I.2: Median Pretax Net Income by Physician Specialty (1981-1985)

Specialty	Median pretax net income				
	1981	1982	1983	1984	1985
Radiology	\$110,000	\$127,500	\$130,000	\$122,000	\$150,000
Anesthesiology	110,000	120,000	140,000	150,000	128,000
Pathology	N/A	N/A	N/A	106,000	120,000
Surgery	100,000	112,000	125,000	130,000	130,000
OB/GYN	96,000	110,000	107,000	106,000	117,500
Internal medicine	74,500	75,000	80,000	90,000	89,000
Psychiatry	63,000	69,000	72,000	80,000	80,000
General/Family practice	60,000	63,000	63,000	63,000	70,000
Pediatrics	57,000	63,000	61,500	68,500	70,500
All physicians	78,000	85,000	90,000	92,000	95,000

N/A = Not available.

Source: American Medical Association.

Table I.3: Distribution of Pretax Net Income, by RAP Specialties (1985)

<u>Specialty</u>	<u>Distribution of pretax net income</u>		
	<u>75th Percentile</u>	<u>50th Percentile</u>	<u>25th Percentile</u>
All physicians	\$140,000	\$95,000	\$65,000
Radiologists	200,000	150,000	90,000
Anesthesiologists	169,300	128,000	98,000
Pathologists	155,000	120,000	77,500

Source: American Medical Association.

Table I.4: Median Pretax Net Income by Physician Specialty (1981-1985)

<u>Specialty</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Radiology	\$127,300	N/A	N/A	\$159,800	\$150,000
Anesthesiology	109,000	N/A	N/A	N/A	134,200
Pathology	104,600	N/A	N/A	N/A	N/A
Neurosurgery	135,700	\$142,500	\$147,900	179,700	192,700
Orthopedic surgery	134,700	139,500	142,300	173,000	168,800
Thoracic surgery	116,700	131,900	136,600	149,300	151,800
Plastic surgery	119,200	127,900	127,100	144,300	155,200
OBG specialists	105,100	108,300	109,200	112,100	121,400
Ophthalmology	96,700	N/A	112,500	150,000	N/A
General surgery	95,600	98,900	105,500	117,900	120,800
Internal medicine	79,700	85,900	83,500	89,700	89,600
Psychiatry	70,400	N/A	N/A	79,900	80,400
Family practice	69,800	74,600	76,200	76,800	76,500
General practice	64,000	69,000	68,100	68,600	71,500
Pediatrics	65,400	72,100	74,100	76,500	79,100
Surgical specialists	118,900	115,000	120,500	129,500	132,600
Nonsurgical specialists	83,800	85,900	88,600	94,700	94,700
All physicians	86,200	93,300	94,600	102,000	102,500

N/A = Not available.

Source: Medical Economics.

Table I.5: Mean Pretax Net Income by Specialty and Type of Employment (1983)

<u>Specialty</u>	<u>Mean pretax net income</u>			
	<u>Hospital employee</u>	<u>Clinic or HMO employee</u>	<u>Corp. or physician employee</u>	<u>Self-employed</u>
Radiology	\$108,700	\$112,400	\$117,800	\$130,400 ^a
Anesthesiology	110,700	111,000	111,800	134,100 ^a
Pathology	91,700	74,700	99,500	124,000 ^a
Other specialties	83,700	91,000	87,700	102,400 ^a
General practice	53,500	72,400 ^a	56,200	70,200
Family practice	64,500	69,800	72,700	73,500 ^a
Internal medicine	59,000	76,600	86,900 ^a	84,500
Cardio disease	64,200	91,400	101,900	130,000 ^a
Pediatrics	55,100	68,200	68,500	74,900 ^a
Other internal	82,000	92,600	128,000 ^a	105,500
General surgery	79,200	109,000	114,700 ^a	106,900
Orthopedic surgery	119,100	102,300	137,600	140,500 ^a
Ophthalmology	123,200	88,100	126,100 ^a	120,900
Urological	102,600	126,100 ^a	121,300	109,500
OB/GYN	102,000	101,400	79,400	114,500 ^a
Other surgery	94,700	156,300	175,600 ^a	117,300
Psychiatry	70,600	69,000	80,200 ^a	75,400
All physicians	80,200	86,200	102,600 ^a	99,600

^aDesignates the type of employment category with the highest income for that specialty.

Source: HCFA.

METHOD AND ASSUMPTIONS USED FOR ESTIMATING
MEDICARE PAYMENTS TO PHYSICIANS

To prepare table 2 showing payments to radiologists, anesthesiologists, and pathologists as a percent of total Medicare payments, we had to combine data from three different HCFA files. This was because, prior to the enactment of TEFRA, the Medicare program permitted the use of three billing methods for hospital-based physicians. These methods are referred to by the type of claim form the physicians submitted, i.e.:

- The HCFA-1500 (and its predecessor, the HCFA-1490) was the most widely used billing method for radiology and anesthesiology services of hospitals or physicians who identified specific charges for specific physician services.
- When a provider customarily chose not to identify a separate charge for each physician service, the HCFA-1554 form was used. This allowed a hospital to group the charges of various ancillary service departments, such as radiology, cardiology, and pathology.
- Under the combined billing method, the services and the charges of the hospital and the physician were combined and submitted to the intermediary, even though part B services were being billed.

To develop our Medicare payment data, it was necessary to total payments from the three billing sources. While the HCFA 1500 billings were available by RAP specialty, only aggregate data were available for the HCFA-1554 and combined bills. Consequently, we had to prorate the HCFA-1554 and combined bills to the individual RAP specialties to obtain our estimated Medicare payments. We prorated the 1554 annual amounts among the three RAP specialties according to percentages derived from a HCFA analysis of 1554 billings performed for 1975 billings. We split the total amount of combined bills among pathologists and radiologists--the only two specialties allowed to use combined billing for inpatient services. Percentages were based on the number of pathologists relative to radiologists who were full-time, nonfederal, hospital-based physicians, according to American Medical Association data.

Table II.1 shows the estimated effect on RAP physician payments of combined bills and HCFA-1554 payments for 1975 and 1981. TEFRA effectively eliminated this type of billing in 1983.

In 1975, Medicare payments to RAP physicians were approximately \$418 million, we estimate, including about \$86 million (20.5 percent) paid through combined or 1554 bills. In 1975, Medicare part B payment for radiologists, anesthesiologists,

and pathologists were \$210 million, 133 million, and \$75 million, respectively. These estimates include \$36 million (17.3 percent) for radiologists, \$2.3 million (1.7 percent) for anesthesiologists, and \$47 million (62.7 percent) for pathologists billed through combined or 1554 bills. In 1981, RAP payments had increased to about \$1.3 billion, including combined or 1554 bill amounts of over \$131 million (10.0 percent). However, the percent combined or 1554 bills represented of total payments had decreased to about 7.5, 1.1, and 36.4 percent, respectively, of radiologists', anesthesiologists', and pathologists' total payments.

To develop trend information on Medicare payments to RAP physicians, we used HCFA physician payment data by specialty, a 1 percent sample of the HCFA bill summary record for 1975 and 1981, and 100 percent data from HCFA's part B payment record tables for 1985. For payment information for 1975 and 1981, we added our estimate of HCFA's payment to RAP physicians under combined bills and 1554s. We then determined the percentage paid by RAP specialty and 10 other common physician specialties for comparison.

**TABLE II.1: MEDICARE PART B PAYMENTS FOR RAP SERVICES INCLUDING 1554s
AND COMBINED BILLING PAYMENTS (1975, 1981, AND 1985)**

Specialty	1975		1981		1985	
	Estimated Amount (000)	Percent	Estimated Amount (000)	Percent	Amount (000)	Percent
Radiology	\$173,765	82.7	\$657,647	92.5	\$1,074,976	100.0
Radiology 1554s	2,200	1.1	4,242	0.6	—	
Radiology combined bills	34,082	16.2	49,073	6.9	—	
Total for Radiology	<u>\$210,047</u>	100.0	<u>\$710,962</u>	100.0	<u>\$1,074,976</u>	100.0
Anesthesiology	\$130,441	98.3	\$401,219	98.9	\$612,499	100.0
Anesthesiology 1554s	2,300	1.7	4,437	1.1	—	
Anesthesiology combined bills	—		—		—	
Total for Anesthesiology	<u>\$132,741</u>	100.0	<u>\$405,656</u>	100.0	<u>\$612,499</u>	100.0
Pathology	\$27,905	37.3	\$128,251	63.6	\$140,820	100.0
Pathology 1554s	11,400	15.2	21,986	10.9	—	
Pathology combined bills	35,616	47.5	51,281	25.5	—	
Total for Pathology	<u>\$74,921</u>	100.0	<u>\$201,518</u>	100.0	<u>\$140,820</u>	100.0
Payments for RAP Physicians	\$417,709		\$1,318,136		\$1,828,295	

Source: GAO analysis of HCFA data.

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